Section 3
Endangered Species Act Issues Related to Water Supply

Conservation of species listed under the Endangered Species Act (ESA) has become a significant issue that will likely affect a wide range of public and private sector activities in King County (County). Provision of public water supplies is one of the activities that could be affected. This section provides background information on the ESA and its potential linkages to water supply in the County. In addition, using work products from the Outlook process, this section summarizes the current status of efforts to analyze watersheds within the County with regard to fish habitat issues. On the whole, ESA implementation creates some uncertainties for the water supplies in the County. Addressing the uncertainties, through efforts such as Seattle's Habitat Conservation Plans, will be an important element of water supply planning in the County and region.

3.1 Background on ESA Considerations

Surface waters in the King County area provide habitat for two fish species that the federal government has listed as "threatened" under ESA. These are Puget Sound Chinook salmon, and Bull Trout. A range of conditions in surface streams and rivers may potentially affect these species at some times and places. Conditions that may involve water suppliers for certain locations of specific rivers and streams include the quantity of water flowing in streams at specific times and locations, water temperature, diversion structures, and other structures that block fish passage, such as dams. However, habitat suitability for fish is affected by more than the actions of water suppliers. Forest practices, agricultural activity, and land development also can impact fish recovery by harming natural stream conditions. Furthermore, stormwater runoff can alter natural stream dynamics and water quality.

The relationship between water supply, habitat conditions, and fish populations is highly complex. These relationships vary from one place to another within the County. They interact with naturally varying seasonal conditions, such as stream flow, temperature, and the life-cycle activities of the fish themselves, such as spawning, rearing, and migration. For the most part, site-specific evaluations quantifying water supply and fish population dynamics have not been completed in the King County area at this time.

3.2 Potential Effects on Water Supply

There has been considerable discussion among water systems, State agencies and others regarding the potential relationship between ESA and water supply. Water supplies may be potentially affected through several pathways, including the following:

- Rules promulgated under section 4(d) of ESA;
- Interagency consultations to prohibit "take" of listed species; on actions taken, funded, or permitted by federal agencies;
- Permits issued for "incidental take," under provisions of an associated Habitat Conservation Plan (HCP); or,
- Citizen suits permitted under ESA.

At this time, implementation of ESA in the Puget Sound region is just beginning, and the implications remain uncertain. If found to "harm" threatened or endangered species it is possible that access to certain water supplies described throughout this Consolidated Report might be reduced in the future, through regulatory actions by State or federal agencies, citizen suits under ESA, or through inter-governmental agreements and voluntary actions. This Consolidated Report does not attempt to estimate these effects, due to the uncertainties involved. This issue will require careful monitoring, and participation, as ESA implementation proceeds in the Puget Sound region and elsewhere.

A Habitat Conservation Plan (HCP) has been developed for the Cedar River, which provides water for a large share of the County population. The National Marine Fisheries Service has determined the Cedar HCP will not preclude fish recovery and will be a net benefit to threatened species recovery. The HCP considerably improves the level of certainty that this source will remain available to meet the needs of King County communities for approximately 50 years (see Section 3.4).

Ground water systems may also feel some impacts of the ESA listings. This is due to hydraulic continuity, or the interaction between ground water and surface water that may occur in some areas. Increases in ground water pumping rates may contribute to declining instream flows reported in some reaches of certain streams and rivers. Another factor is the increase in impervious surfaces, which can reduce natural aquifer recharge. It is possible that state or federal agencies may require some water systems in the County to reduce or modify ground water usage in locations where there are continuity issues with nearby streams that are impacting fish populations.

Sewer and drainage systems with inflow and infiltration of stormwater and groundwater may also affect streamflow, although this has not been characterized to determine the overall impact within the county area.

3.3 Flow Conditions in King County Surface Waters

In an effort to better understand the issues regarding fish conservation, the Central Puget Sound Water Suppliers' Forum convened a Fish and ESA Issues Work Group. The primary activity of this Work Group was to gather information on stream flows generated by the Water Resource Inventory Area (WRIA) groups organized under the Salmon Recovery Act (House Bill 2496) or the Watershed Planning Act (House Bill 2514) within the three-county area. The intent was to improve the Forum's understanding of flow issues as they pertain to the regional fisheries resource.

This work can be characterized as identifying areas where there are preliminary indications that low flows may affect fish populations. The Work Group did not identify specific causes of the reported low flows, or verify that flows are problematic to fish populations in each area. The Work Group indicated that additional work will be needed in the future to define relationships between flows and fisheries life-cycles, and to allow a meaningful evaluation of future municipal water supply options and their potential impact, if any, on fish.

The Work Group identified six WRIAs[(1)] in its study area. As noted previously, four of these WRIAs contain lands within King County. These are:

- WRIA 7: Snohomish (approximately half of this WRIA is in King County);
- WRIA 8: Cedar/Lake Washington (approximately 90 percent of this WRIA is in King County);
- WRIA 9: Green/Duwamish (entirely within King County); and,
- WRIA 10: Puyallup (approximately ten percent of this WRIA is in King County).

The ESA and Fish Issues Work Group requested that WRIA planning groups provide information from technical assessments or Limiting Factors Analyses. These documents report the current state of knowledge for each WRIA based on available data and reflect the current opinion of WRIA groups researching these issues. Underlying sources or scientific studies were not investigated by the Work Group. The information gathered is considered "interim," as current knowledge is limited. The Work Group noted that water quantity information is frequently a "data gap" in WRIA studies, and that data gathered is not comprehensive. Therefore, specific reaches of streams or rivers listed in the interim tables should not necessarily be considered more problematic than others. The availability of data may increase in the near future due to the recent receipt by the Department of Ecology of $600,000 from the Legislature for use in instream flow setting within six critical basins not performing watershed planning under the Watershed Planning Act. WRIAs 8, 9, and 10 are three of the basins receiving portions of this funding.

(1) Under the Water Resources Act of 1971, the Department of Ecology divided the state into 62 WRIAs. The WRIAs were established based on hydrologic and geographical boundaries, and provide a geographic basis for watershed planning and water management.

Appendix D provides summary data gathered by the ESA and Fish Issues Work Group. For each of the four WRIAs listed above, there is an overview, and a flow matrix that identifies specific reaches of rivers, streams or creeks where low flow issues have been identified on a preliminary basis.

3.4 Seattle's Habitat Conservation Plan

As described in Section 2.2, the Cedar River provides approximately 70 percent of the water produced for SPU, including water sold to its wholesale partners. One of the most significant actions that has been taken to date involving the ESA in King County is SPU's development of a HCP for the Cedar River. The HCP is a comprehensive plan for the Cedar River Watershed that will protect and restore the natural area for the next 50 years and beyond. The HCP incorporates more than 10 years of scientific research and monitoring, and commits more the $90 million to improve conditions for fish and wildlife. The plan will substantially contribute to ensuring that Seattle and its wholesale partners in King County have an adequate supply of high-quality drinking water well into the 21st century. While the HCP primarily involves work in the upper watershed, there are a number of significant efforts outlined in the HCP that benefit the habitat in the lower watershed. Many of the projects in the lower watershed are being conducted collaboratively with other organizations.

The Cedar River HCP was developed in collaboration with State and federal agencies, with input on important parts of the plan from Tribal biologists and leading regional scientists. It is based on the best available scientific information and over 10 years of collaborative research. There was also an extensive public participation process that began in 1994 and involved more than 100 presentations, workshops, field trips, and meetings; engaging the public and scientists in development, review, and revisions to the HCP. During the implementation phase, stakeholders, scientists, and the Muckleshoot Indian Tribe will continue to be involved in an advisory capacity by way of participation on oversight committees.

As part of the HCP, the City of Seattle has made a 50-year commitment to a wide variety of programs providing significant benefits to fish and wildlife found throughout the entire Cedar River System. These commitments are in three primary areas: forests, fish, and flows. The features of the HCP are too numerous to list here, only a few will be mentioned. In forests, Seattle has committed to eliminate timber harvest for commercial purposes, thereby creating a watershed ecological reserve, and committed a total of $26.8 million for a comprehensive program to restore fish and wildlife habitats in the watershed. With respect to fish, Seattle has committed to provide a total of $38.2 million specifically to protect and restore habitats and populations of anadromous fish currently blocked from entry into the municipal watershed by the Landsburg Diversion Dam. In addition, the City will construct fish ladders, protective screens on the water intake, and other improvements for the safe passage of chinook, coho, steelhead, and other native fish

species over the Landsburg Diversion Dam, providing access to some of the most protected "refuge" habitat in the region. With respect to flows, Seattle has committed to guaranteed river flows in the Cedar River that include binding minimum (base) and supplemental flows to provide better habitat conditions than current, non-binding minimum flows and has made other flow-related commitments, such as limiting rates of down-ramping and significant financial commitments, to improve conditions for fish. Furthermore, as part of the HCP the Cedar River Instream Flow Commission was established to serve as a forum for communication for the parties to the Instream Flow Agreement. The Commission discusses technical information on hydrologic conditions, system operations, fish biology, ecology and potential uses of unallocated non-firm water.

3.5 Tacoma's Habitat Conservation Plan

Tacoma has developed a Habitat Conservation Plan in order to restore and rehabilitate Green River fisheries. A goal of the HCP is to avoid adverse impacts where possible and to minimize and mitigate them where avoidance is not possible. Perhaps the most significant aspect of this HCP is the management of instream flows. Some key components of the HCP include:

- Tacoma's voluntary reduction in its 400 cfs claim;
- Tacoma's amendment of water rights to incorporate the higher instream flows previously agreed to with the Muckleshoot Indian Tribe; and,
- Provision of funding to support an increase in storage at Howard Hansen Dam.